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BIOLOGICAL EVALUATION
Roundheaded Pine Beetle Infestation

Riggs Lake
Safford District
Coronado National Forest
Arizona

1971

On March 30 and 31, 1971, Pest Control personnel John Gardner, Richard Robbins, and Paul Buffam sampled the roundheaded pine beetle, Dendroctonus adjunctus, population in ponderosa pine marked for treatment at Riggs Lake, Safford District. The purpose of this evaluation was to determine if the unseasonably cold temperatures in January had reduced the live beetle population below a treatable level.

Methods

Bark samples approximately 6 inches square were removed from 7 standing and 8 felled, infested trees. One sample was cut from each of the north and south sides of standing infested trees at 5 feet above the ground. One sample was cut from the basal section of each of the upper and lower (next to ground) surfaces of felled trees. Felled trees had been cut about the first of December in preparation for treating with ethylene dibromide. However, a snowstorm hit the area before these trees could be treated. Samples were transported to our laboratory in Albuquerque where they were measured and dissected and the number of live and dead beetle eggs, larvae, pupae, and adults counted.

Results and Discussion

Three beetle species were found in the sample trees--D. adjunctus, D. ponderosae, and Ips knausi. D. adjunctus was the most prevalent species (Table 1). More beetles were found in felled trees than in standing trees, indicating that ips and roundheaded pine beetles flying after the first of December were attracted to these freshly

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Table 1.--Results of sampling for roundheaded pine beetles in bark samples taken on Mar. 30 & 31, 1971, from ponderosa pine at Riggs Lake, Safford District, Coronado National Forest, Arizona.

Tree position	No. trees		D. adjunctus					I. knausi		D. ponderosae	
			Larvae		Parent adults			Parent adults		Parent adults	
			Live	Dead	Live	Dead	Eggs	Live	Dead	Live	Dead
			----------Ave. number per sq. ft. bark surface----------								
Felled	8	Upper	66.6	0.0	3.1	11.6	6.7	1.1	2.8	0.0	0.0
	8	Lower	19.4	0.0	13.8	2.7	8.2	0.0	1.5	0.3	0.0
		Ave.	43.9	0.0	8.3	7.4	7.4	0.5	2.2	0.2	0.0
Standing	7	North	7.7	0.0	2.0	5.7	2.3	0.3	0.3	0.0	1.7
	7	South	0.0	0.0	0.4	5.0	2.1	0.0	0.9	0.0	1.2
		Ave.	3.9	0.0	1.2	5.4	2.3	0.2	0.6	0.0	1.5

cut trees. Chansler[1/] states that D. adjunctus is attracted to down trees. Significantly more live larvae and dead parent adults were found in upper samples from felled trees than from lower samples. No dead larvae of any type were found in samples from standing or felled trees. Some dead parent adults were obtained in samples from both felled and standing trees, but the cold temperatures did not affect the overall population significantly.

Recommendations

1. Complete the felling and treating of infested trees near Riggs Lake as planned.

2. Plan to increase the vigor of this timber stand through thinning or logging. Growth rings of trees within the infested area indicate that the stand has become somewhat stagnated in the past 10 years. The roundheaded pine beetle and ips are attacking these less vigorous trees. At first, the beetles killed mostly the intermediate and suppressed trees. Most of these are gone, so now the pests are attacking the dominants and codominants. Thinning would help improve stand vigor and should result in decreased insect activity.

Prepared by:

Paul E. Buffam

Paul E. Buffam, Entomologist
Branch of Forest Pest Control

APPROVED BY:

F. M. Yasinski

F. M. Yasinski, Chief
Branch of Forest Pest Control

Mark M. Johannesen

Mark M. Johannesen
Assistant Regional Forester

1/ Chansler, J. F. 1967. Biology and life history of Dendroctonus adjunctus (Coleoptera: Scolytidae). Annals of the Entomological Society of America 60(4): 760-67.

POST-SUPPRESSION EVALUATION

Riggs Lake Roundheaded Pine Beetle Project
Safford District
Coronado National Forest
Arizona

1971

On May 20, 1971, John Caffrey, of the Safford Ranger District, and Richard Robbins and Paul Buffam, of the Forest Insect and Disease Branch, evaluated the results of a project to suppress populations of the roundheaded pine beetle, Dendroctonus adjunctus, in the vicinity of Riggs Lake. In this project, 410 ponderosa pine trees were felled, bucked, limbed, turned, and treated with a solution containing 1 pound of ethylene dibromide per 5 gallons of fuel oil. The project was begun in December 1970 and completed in May 1971.

Methods

Two 6- by 6-inch bark samples were cut from each of 30 randomly selected treated trees in the area. The samples were examined for living and dead bark beetle stages.

Results

No live larvae, pupae, or adults were found in any of the samples. In one sample, 4 eggs were found, but the larvae from these are not expected to live if they emerge from the eggs. The chemical treatment was effective in killing the beetles in the infested trees. A follow-up examination will be made in late fall 1971 or early spring 1972 to determine if this treatment prevents wholesale tree mortality by the roundheaded pine beetle in late 1971.

6-21-71
mm to Stevens

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Region 3
517 Gold Avenue, SW
Albuquerque, New Mexico 87101

JUN 16 1971

REPLY TO: 5230 Evaluation

SUBJECT: Roundheaded Pine Beetle - Riggs Lake, Safford District

TO: Forest Supervisor, Coronado NF

Enclosed for your interest are copies of evaluations prepared by our Insect and Disease Branch on the Riggs Lake roundheaded pine beetle infestation on the Safford District. We commend District personnel for a treating job well done. Our entomologists will visit the area in late fall or early spring to determine the success of this treatment in preventing attacks by the roundheaded pine beetle in the fall of 1971.

Mark M. Johannesen

MARK M. JOHANNESEN
Assistant Regional Forester
Timber Management

Enclosures

cc: WO
WO Div. FI&DR (2)
RM, Ft. Collins
RM, Albuquerque
SA (3)
Regions 1, 2, 4, 5, & 6
Ing. Humberto Moreno
Noriega, Mexico